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MAY 13 2008

Department of Environmental Quality  
State Air Program

May 6, 2008

Mr. Jonathan Pettit  
Department of Environmental Quality  
State of Idaho  
1410 North Hilton  
Boise, ID 83706

Dear Mr. Pettit:

**RE: Re-submittal of Tier II Permit To Construct and Operating Permit  
Modification for University of Idaho, Moscow**

On behalf of the University of Idaho (University), Bison Engineering, Inc., is pleased to submit this letter, attached forms, and supporting information which constitute an application to modify Tier II Operating Permit and Permit to Construct Number 057-00025 (the Permit) for the University (Facility ID No. 057-00025). This application was previously submitted, and then withdrawn pending a stack height change for the wood-fired boiler at the University. The stack height change has been approved, and the University wishes to re-submit the attached application to the Idaho Department of Environmental Quality – Air Quality Division (DEQ).

This modification requests the following specific changes:

- I. Convert the combination Operating Permit and Permit To Construct to a Permit To Construct (PTC) only. Note that the University is also subject to a Tier I (Title V) operating permit, Permit Number T1-060203. The University has submitted an application to renew their Tier I Operating Permit and has attempted to coordinate information presented in the two applications.
- II. Permit an existing but inactive natural gas-fired boiler. The boiler is to be designated Boiler S-BC.
- III. Effect a number of minor administrative permit changes as described herein.

Information required for a PTC application is listed in guidance document AQ-CH-P0008, "Minor Source Permit to Construct Application Completeness Checklist," published by DEQ. This information is provided or otherwise addressed as follows:

Application Forms – Applicable application forms are included as Appendix A to this letter. Included with the forms is a certification of truth, accuracy, and completeness signed by Fred Hutchison, responsible official for the University.

Application Fee – The University previously submitted the \$1,000 application fee required in accordance with IDAPA 58.01.01.224. DEQ stated that the fee would cover this application, so an application fee is not included. The University understands the processing fee required in 58.01.01.225 will be assessed separately by DEQ upon receipt of the application.

Process and Equipment Descriptions – The University is requesting that an existing but inactive natural gas-fired boiler be added to the PTC permit with this application. A discussion of the basis for this request is included below. Detailed equipment information is provided in attached Form EU5.

Emission Estimate References and Documentation – Appendix B to this letter provides updated estimates of emissions from all applicable facility sources, including natural gas-fired boiler S-BC, which is the boiler to be reinstated into the permit. The appendix describes the methods and reference sources employed to derive the estimates. The forms included in Appendix A also summarize facility-wide emissions and emissions from the proposed boiler.

Criteria Pollutant Ambient Concentration Impacts Modeling Demonstrations – The University facility was previously modeled to demonstrate compliance with the NAAQS using the ISC3-Prime model. This model included the S-BC (formerly S-B1) natural gas-fired boiler. The University recognizes that the ISC3-Prime model is no longer an approved regulatory model.

DEQ has updated the facility-wide model to AERMOD for use in PM<sub>10</sub> modeling for a new boiler stack height for the wood-fired boiler. The University has taken the new AERMOD model and used it to demonstrate compliance with the NAAQS for all of the criteria pollutants. An e-mail from Kevin Schilling at DEQ is attached (Appendix C) recommending the use of the AERMOD model for this purpose. The results of the updated model show the facility is in compliance with the NAAQS. Results of the AERMOD model demonstrating compliance with the NAAQS are contained in Appendix D. A CD containing the complete modeling files is contained in Appendix H.

It should be noted that the modeling analyses were conducted assuming combustion of natural gas in Boiler S-BC. The University confirms that the boiler is capable of combusting only natural gas and cannot burn other fuels such as fuel oil or coal.

Toxic Air Pollutant Ambient Concentration Impacts Modeling Demonstration - IDAPA 58.01.01.007.06.c and DEQ's guidance document AZ-CH-P006, "Toxic Air Pollutant (TAP) Preconstruction Compliance Application Completeness Checklist," indicate that TAP emissions from Boiler S-BC are not regulated since it was constructed prior to July 1, 1995. Nevertheless, at the suggestion of DEQ, the University has completed an evaluation of the compliance of the facility emissions, including Boiler S-BC with applicable air toxics emissions limits at IDAPA 58.01.01.161. The boiler's potential toxic emissions were identified and quantified in accordance with IDAPA 58.01.01, Sections 210.01 and 210.02 using emission factors published by the US EPA. Following a two-



step process, the estimated potential emissions were compared first against applicable regulatory thresholds in accordance with IDAPA 58.01.01, Sections 210.05, 585, and 586. This analysis identified fourteen compounds that could potentially be emitted above the applicable screening emission thresholds. Emissions of these fourteen compounds were then entered into the AERMOD model and an analysis was performed in accordance with IDAPA 58.01.01.210.06. The resulting peak ambient concentrations of fourteen TAPS were compared against screening threshold values provided at IDAPA 58.01.01 Sections 585 and 586.

Results from these analyses demonstrate that emission rates or ambient concentrations of all TAPS emitted from the facility are below applicable threshold limits. Please refer to Appendix E for detailed TAPS analysis results. A CD containing the complete modeling files is contained in Appendix H.

Scaled Plot Plan – Applicable information was submitted in 1995, 1996, and 1998. Applicable information has not changed since initial submittal.

Applicable Requirements – The University proposes that the S-BC Boiler be added to Section 4 of the current permit with applicable rules the same as those listed for the currently permitted natural gas-fired boilers. Attachment F to this letter contains an analysis of all regulations the University believes are applicable to the proposed natural gas-fired Boiler (S-BC).

Certification – A certification of truth, accuracy, and completeness signed by Fred Hutchison, responsible official is included with the application forms enclosed with this application as Appendix A.

The remainder of this letter presents and describes specific requests for modifications and amendments to the permit:

#### **I. Permit Type Transition**

As noted previously, the University is currently subject to a Tier I Operating Permit and a combination Tier II Operating Permit and Permit to Construct. We assert that it is redundant to have two operating permits for the same facility and emitting units. We understand the need for a PTC to establish substantive conditions and limits as a basis for those conditions and limits included in an operating permit. According to our conversations with DEQ staff, it is possible to transition the existing Tier II Operating/PTC combination permit into a PTC only. With this application, the University is formally requesting such a change in permit designation.



## II. Natural Gas Boiler Addition

The proposed Boiler S-BC (formerly S-B1) has existed on-site since at least 1963 but has not been operated since issuance of the University's current air quality permits. The boiler, which would be designated Boiler S-BC, was manufactured by Babcock and Wilcox and has a rated heat input capacity of 78.6 MMBtu/lb and a rated output capacity of 55,000 lbs of steam per hour. Following is detailed information pertaining to Boiler S-BC and the basis for its addition to the permit.

- Construction Date – Information the University previously submitted to DEQ in support of air quality permit applications has stated that Boiler S-BC, then identified as Natural Gas Fired Boiler S-B1, was installed in 1963. Consequently, its construction predates federal and state air quality rules and can be considered a "grandfathered" source with no specific requirements other than the visible emissions limit of IDAPA 58.01.01.625 and particulate matter limit of 58.01.01.676. Further, the University certifies that since the boiler's installation, it has not been modified in a manner that could have potentially increased air emissions.
- Prior Department Review and Preliminary Approval – The University submitted an application for a Tier II operating permit in July 1995. An initial application for a Tier I operating permit was submitted in March 1996, with updates submitted in August 1998 and January 1999. On June 3, 2002, DEQ issued a proposed Tier II operating permit that included the S-BC (formerly S-B1) boiler. It is our understanding that the boiler would be listed in the current permits except that the University requested in a July 8, 2002, letter that it be removed from the Tier II permit application. At the time, the University believed the boiler would never again be operated. Since that time, the University has decided to re-activate the boiler and keep it in standby or back-up service.
- Potential to Emit and Ambient Concentration Impacts Modeling Demonstrations – A discussion of potential boiler emissions of criteria and toxic air pollutants, and of resulting potential impacts to ambient concentrations is included above. All potential emission rates and ambient impacts have been demonstrated to be acceptable.

## III. Other Administrative Permit Changes

- Omit Consent Order References – Permit Condition 1.2 lists four consent orders and states that all are terminated with initial issuance of the Tier II/PTC permit. This information is no longer current or relevant. Please remove this paragraph from the permit.
- Boiler Identification Changes – Please make the following changes to the boiler identification codes:



Boiler Description	Current Identifier	Revised Identifier
Wood-waste-fired boiler	S-B00	S-BA
Cleaver-Brooks natural gas-fired boiler	S-B0	S-BB
Babcock & Wilcox natural gas-fired boiler	Not in current permit	S-BC
Combustion Engineering natural gas-fired boiler	S-B4	S-BD

Note that these identifiers occur throughout the permit.

- Citation Updates – Many of the regulatory authorization citations require updating. They list dates that are not current and do not correspond with dates provided for the same rules as cited in the Tier I Operating Permit.
- Removal of Opacity Observations Requirement – Please delete the paragraph 2.8 monthly visible emissions inspection requirement. The authorizing rule citations for this permit condition – IDAPA 58.01.01.322.06, 07, and 08 – address DEQ's requirements to include in approved operating permits requirements for monitoring, recordkeeping, and reporting that are adequate for the purpose of ensuring compliance with substantive requirements. The University's only non-insignificant point sources are the wood-waste-fired boiler, the natural gas-fired boilers, and the emergency diesel generators. The wood-waste-fired boiler employs a continuous opacity monitor to continuously measure and record the opacity of its emissions. The University maintains that, for this source, requirements associated with the operation of a continuous opacity monitor satisfy the intent of the rule and do so in a more comprehensive manner than the monthly visual inspection requirement. With respect to the natural gas-fired boilers, the permit explicitly states that no compliance demonstrations are necessary to establish compliance with the grain-loading standard and the visible emissions standard (see Permit Conditions 4.4 and 4.5). Finally, the emergency generators operate infrequently, making monthly observations of these sources unnecessary and impractical.

Please also delete the reference to Permit Condition 2.7 found at Permit Condition 4.5.

- Wood-Waste-Fired Boiler Steam Capacity Change – The University conducted an emissions test on the wood-waste-fired boiler on January 5, 2005. The test was submitted to and approved by DEQ. The boiler's average steam production rate was 55,700 lb/hr. The boiler's particulate emission rate was measured three separate times in accordance with EPA Test Method 5 and associated test methods. All three tests indicated particulate emission rates below the particulate matter and PM<sub>10</sub> emission limits in Permit Condition 3.3. Average values for the three samples were as follows:



PM – 0.034 gr/dscf at 8% O<sub>2</sub>

PM<sub>10</sub> – 5.9 lb/hr (as PM)

Steam production rate – 55,700 lb/hr

Permit Condition 3.5 allows the University to increase the wood-waste-fired boiler steam production limit stated in paragraph 3.5 based on test data such as those described above. Specifically, the limit may be increased up to 120 percent of the average steam production rate achieved during the most recent DEQ-approved test, provided the applicable PM grain loading standard would not be exceeded at such a rate. Assuming a near-linear relationship between steam production rate and grain loading, a 20 percent increase in average steam production – to a value of 66,800 lb/hr – would result in an average PM grain loading of 0.041 gr/dscf @ 8% O<sub>2</sub>. This is well below the permit grain loading limit of 0.080 gr/dscf @ 8% O<sub>2</sub>.

Considering the preceding test data and analysis, and in accordance with provisions in paragraph 3.5, the University requests that the wood-waste-fired boiler steam production limit stated in paragraph 3.5 be increased from 52,300 lb/hr to 66,800 lb/hr. The University does not request to change either the grain loading limit or the particulate matter limit (including condensables) of Section 3.3 of the current permit.

- Multiclone Pressure Drop as a Permit Condition – Paragraph 3.7 imposes a monitoring requirement for the wood-waste-fired boiler multiclone, which states “The multiclone pressure drop shall be maintained within the pressure drop range specified in the O & M Manual.”

The University requested that this requirement be removed from the permit because an excursion outside of this range is by definition a permit violation, but such an excursion would provide no direct evidence that an actual emissions violation had occurred. The Compliance Assurance Monitoring (CAM) plan being established in the Tier I operating permit renewal will contain essentially the exact same requirement for monitoring the pressure drop of the multiclone and keeping it within an established indicator range. The difference is, in the CAM plan when the pressure drop goes outside of the indicator range, the University must take corrective action, but a permit violation is not automatically incurred.

The University believes that even with requirements for pressure drop of the multiclone removed from the Tier II permit, the Department still has in place substantial and more direct methods of monitoring compliance with opacity and particulate emission limitations. The COMS, currently required by permit, provides instantaneous and long term information about the opacity levels emitted by the boiler, as well as indicating multiclone performance. Any excess visible emissions are clearly an indicator that the operation of the boiler and multiclone need to be reviewed in real time. In addition, the 5-year particulate testing schedule provides a direct indication of compliance with particulate emission limitations.



The University also believes the multiclone pressure drop monitoring requirement of Section 3.11 should be removed. Without a specific pressure drop requirement, which, as stated in the application and reiterated above, is inappropriate, there is no standard against which to compare the monitored data. Removal of the monitoring requirement from the PTC will not mean that the University will discontinue monitoring, however, since pressure drop monitoring will be part of the CAM plan required by the Tier I Operating Permit.

- Wood-Waste-Fired Boiler Emission Factor Change – Permit Condition 3.13 provides  $PM_{10}$ ,  $NO_x$ , and CO emission factors to be used when calculating annual emissions for comparison with the applicable emission rate limits. The current factors derive from EPA standard emission factors, but paragraph 3.13 provides a process for modifying the factors: “The permittee may use emission factors developed through DEQ-approved performance testing in place of the emission factors listed in Table 3.4, provided they are in the same units as the emission factors listed in Table 3.4, are formally approved by DEQ, and changed in this permit.”

As noted above, the University conducted a particulate emissions test on the wood-waste-fired boiler on January 5, 2005. Emissions of CO were measured in March of 1998. Methods and results of both tests were reported to, and approved by, DEQ. For DEQ’s reference, copies of summary reports for both tests are included with this letter as Appendix G.

In accordance with the procedure provided in paragraph 3.13, the University requests the following changes to the  $PM_{10}$  and CO emission factors presented in Table 3.1:

Pollutant	Emission Factors (lb/1000 lb steam)		Basis
	Current	Proposed	
$PM_{10}$	0.2395	<b>0.1100</b>	2005 source test; average of three samples
CO	0.5200	<b>0.0861</b>	1998 source test; maximum of three samples

Note that the  $PM_{10}$  emission factor was calculated from the average PM concentration of three samples. Because  $PM_{10}$  concentration is a portion of PM concentration, the derived emission factor provides a conservatively high estimate of  $PM_{10}$  emissions. Uncontrolled CO emissions from the wood-waste-fired boiler are inherently more variable than particulate emissions, which are controlled by a multiclone. The CO emission factor was calculated using the highest concentration measured for three test samples.



- Wood-Waste-Fired Boiler Compliance Testing Frequency – Permit Condition 3.15 sets forth the frequency with which the wood-waste-fired boiler particulate emissions are to be tested. Included in this section is the phrase, "...no further testing is required for the five-year term of this permit." Please revise this language to reflect the change from a combination operating/construction permit to a PTC that does not expire. We suggest language requiring a 5-year testing frequency. If the grain loading is greater than 75% of the grain loading limit, another test shall be performed within 36 months of the previous test date.
- Reduction of Allowable Operating Hours for Emergency Diesel Generators – Please reduce the annual allowable operating hours for the diesel-fired emergency electrical generators in paragraph 5.3 from 1,800 hours each to 500 hours each. A default value of 500 hours is standard for this type of emergency backup source, and the University does not anticipate having to operate the generators more than 500 hours in a single year. The University has incorporated the 500 hour per year limit into the revised emission inventory in Attachment B.

Power output capacity ratings for the emergency diesel-fired generators are as follows:

S-G01 ...350 kw

S-G02 ...180 kw

S-G03 ...500 kw

- Steam Plant Natural Gas Consumption Limit – The emissions inventory provided in Appendix B to this letter reflects a facility-wide potential to emit, which includes a total consumption limit of 1,000,000,000 ( $1.0 \times 10^9$ ) cubic feet of natural gas per year applied to the three natural gas fired boilers at the steam plant. The University requests that DEQ incorporate this steam plant natural gas consumption limit.

With the addition of the third natural gas-fired boiler SB-C, the University recognizes the need to limit potential emissions from the natural gas-fired boilers for three purposes. First, the natural gas consumption limit is used in lieu of hourly or annual emissions limits, as emissions are easily calculated, eliminating stack testing or other compliance procedures, and replacing them with an easy to track and report overall gas consumption limit. Second, the University also recognizes that some form of limitation is required to define the PTE of the natural gas-fired boilers, to keep the annual emission rates under 250 tons per year per pollutant, thus avoiding a major source category designation. Third, the natural gas consumption limit protects the NAAQS (especially for NO<sub>x</sub>). The models included the hourly emission rates for the whole year, and the model does not reflect the lower annual emission rates. Therefore, the model is over-predictive of impacts from the natural-gas fired boilers on an annual basis.

- Facility Emissions – Please revise the facility's air emissions inventory provided at Section 7 of the permit with updated values as provided in Appendix B to this letter.

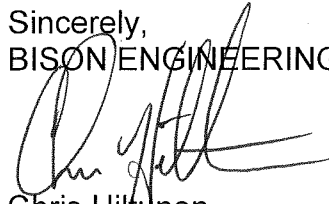




Mr. Jonathan Pettit  
Page 9 of 9  
May 6, 2008

If DEQ has any questions or comments on this application, please contact either me (406-442-5768), or Mike Lyngholm at the University (208-885-5247).

Sincerely,  
BISON ENGINEERING, INC.,



Chris Hiltunen  
Project Engineer

cc: Mike Lyngholm – University of Idaho  
Fred Hutchison – University of Idaho

Attachments:

- Appendix A: Idaho Tier II Operating Permit/ PTC Application Forms
- Appendix B: University of Idaho Emissions Inventory
- Appendix C: E-mail from Kevin Schilling about the AERMOD Model
- Appendix D: Criteria Pollutant AERMOD Modeling Results
- Appendix E: Facility-Wide TAPS Evaluation and Modeling Results
- Appendix F: Analysis of Applicable Requirements for SB-C
- Appendix G: Wood-Waste-Fired Boiler Emissions Test Summaries
- Appendix H: Electronic Copies of Criteria Pollutant and TAPS Modeling Files



APPENDIX A: IDAHO TIER II OPERATING PERMIT/PTC  
APPLICATION FORMS

**DEQ AIR QUALITY PROGRAM**

1410 N. Hilton, Boise, ID 83706

For assistance, call the

**Air Permit Hotline – 1-877-5PERMIT****PERMIT TO CONSTRUCT APPLICATION**

Revision 3

04/03/07

*Please see instructions on page 2 before filling out the form.***COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER**

1. Company Name	University of Idaho		
2. Facility Name	University of Idaho	3. Facility ID No.	057-00025
4. Brief Project Description - One sentence or less	Permit existing natural gas-fired boiler (S-BC).		

**PERMIT APPLICATION TYPE**

5. <input type="checkbox"/> New Facility	<input type="checkbox"/> New Source at Existing Facility	<input checked="" type="checkbox"/> Unpermitted Existing Source
<input checked="" type="checkbox"/> Modify Existing Source: Permit No.: <u>057-00025</u>		Date Issued: <u>September 10, 2002</u>
<input type="checkbox"/> Required by Enforcement Action: Case No.: _____		
6. <input checked="" type="checkbox"/> Minor PTC	<input type="checkbox"/> Major PTC	

**FORMS INCLUDED**

Included	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU0 – Emissions Units General	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU5 – Boiler Information Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form BCE - Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE - Scrubbers Control Equipment	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PP – Plot Plan	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>

**DEQ USE ONLY**

Date Received

Project Number

Payment / Fees Included?

Yes ☐ No ☐

Check Number



DEQ AIR QUALITY PROGRAM  
1410 N. Hilton, Boise, ID 83706  
For assistance, call the  
Air Permit Hotline – 1-877-5PERMIT

# PERMIT TO CONSTRUCT APPLICATION

Revision 3  
03/26/07

Please see instructions on page 2 before filling out the form.

**All information is required. If information is missing, the application will not be processed.**

IDENTIFICATION	
1. Company Name	University of Idaho
2. Facility Name (if different than #1)	
3. Facility I.D. No.	057-00025
4. Brief Project Description:	Permit existing natural gas-fired boiler (S-BC).
FACILITY INFORMATION	
5. Owned/operated by: (✓ if applicable)	<input type="checkbox"/> Federal government <input type="checkbox"/> County government <input checked="" type="checkbox"/> State government <input type="checkbox"/> City government
6. Primary Facility Permit Contact Person/Title	Mike Lyngholm
7. Telephone Number and Email Address	(208)885-5247; lyngholm@uidaho.edu
8. Alternate Facility Contact Person/Title	Scott Smith
9. Telephone Number and Email Address	(208)885-5247; smith@uidaho.edu
10. Address to which permit should be sent	1108 W. Sixth St
11. City/State/Zip	Moscow, ID 83844-2030
12. Equipment Location Address (if different than #10)	Power Plant Building on Campus (Sixth and Line St)
13. City/State/Zip	Moscow ID
14. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
15. SIC Code(s) and NAISC Code	Primary SIC: 8221    Secondary SIC (if any):    NAICS: 611310
16. Brief Business Description and Principal Product	Graduate and post-graduate education and research
17. Identify any adjacent or contiguous facility that this company owns and/or operates	None
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	<input type="checkbox"/> New Facility <input type="checkbox"/> New Source at Existing Facility <input checked="" type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modify Existing Source: Permit No.: 057-00025    Date Issued: September 10, 2002 <input type="checkbox"/> Permit Revision <input type="checkbox"/> Required by Enforcement Action: Case No.:
CERTIFICATION	
IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.	
19. Responsible Official's Name/Title	Fred Hutchison Director Environmental Health and Safety
20. RESPONSIBLE OFFICIAL SIGNATURE	
21. <input checked="" type="checkbox"/> Check here to indicate you would like to review a draft permit prior to final issuance.	Date: 3-13-08



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# PERMIT TO CONSTRUCT APPLICATION

Revision 3  
 03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION						
Company Name: University of Idaho		Facility Name: University of Idaho			Facility ID No: 057-00025	
Brief Project Description:		Permit existing natural gas-fired boiler (S-BC)				
EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION						
1. Emissions Unit (EU) Name:		BABCOCK & WILCOX NATURAL GAS-FIRED BOILER				
2. EU ID Number:		S-BC: shares stack with S-BA; Stack ID: S-BA/S-BC				
3. EU Type:		<input type="checkbox"/> New Source <input checked="" type="checkbox"/> Unpermitted Existing Source <input type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:      Date Issued:				
4. Manufacturer:		BABCOCK & WILCOX				
5. Model:		FM978				
6. Maximum Capacity:		78.6 MMBTU/HR				
7. Date of Construction:		1963				
8. Date of Modification (if any)		NONE				
9. Is this a Controlled Emission Unit?		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes    If Yes, complete the following section. If No, go to line 18.				
EMISSIONS CONTROL EQUIPMENT						
10. Control Equipment Name and ID:		None				
11. Date of Installation:		12. Date of Modification (if any):				
13. Manufacturer and Model Number:						
14. ID(s) of Emission Unit Controlled:						
15. Is operating schedule different than emission units(s) involved?		<input type="checkbox"/> Yes <input type="checkbox"/> No				
16. Does the manufacturer guarantee the control efficiency of the control equipment?		<input type="checkbox"/> Yes <input type="checkbox"/> No    (If Yes, attach and label manufacturer guarantee)				
Control Efficiency	Pollutant Controlled					
	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO
17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.						
EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)						
18. Actual Operation		8760 HRS/YR				
19. Maximum Operation		8760 HRS/YR				
REQUESTED LIMITS						
20. Are you requesting any permit limits?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    (If Yes, check all that apply below)				
<input type="checkbox"/> Operation Hour Limit(s):						
<input type="checkbox"/> Production Limit(s):						
<input type="checkbox"/> Material Usage Limit(s):						
<input type="checkbox"/> Limits Based on Stack Testing		Please attach all relevant stack testing summary reports				
<input checked="" type="checkbox"/> Other:		NAT GAS CONSUMPTION LIMIT FOR STEAM PLANT BOILERS				
21. Rationale for Requesting the Limit(s):		LIMITS PTE AND AMBIENT IMPACTS				



**DEQ AIR QUALITY PROGRAM**  
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# PERMIT TO CONSTRUCT APPLICATION

Revision 3  
 03/27/07


Please see instructions on page 3 before filling out the form.

IDENTIFICATION				
Company Name: University of Idaho		Facility Name: University of Idaho		Facility ID No: 057-00025
Brief Project Description: Permit existing natural gas-fired boiler (S-BC)				
EXEMPTION				
Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.				
BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS				
1. Type of Request: <input type="checkbox"/> New Unit <input checked="" type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #:				
2. Use of Boiler: <input type="checkbox"/> % Used For Process <input checked="" type="checkbox"/> % Used For Space Heat <input type="checkbox"/> % Used For Generating Electricity <input type="checkbox"/> Other:				
3. Boiler ID Number: SBC		4. Rated Capacity: <input checked="" type="checkbox"/> 78.6 Million British Thermal Units Per Hour (MMBtu/hr) <input checked="" type="checkbox"/> 55 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)		
5. Construction Date: 1963		6. Manufacturer: Babcock & Wilcox Boiler		7. Model: FM978
8. Date of Modification (if applicable): N/A		9. Serial Number (if available): A-2218/F2219		10. Control Device (if any): None <b>Note: Attach applicable control equipment form(s)</b>
FUEL DESCRIPTION AND SPECIFICATIONS				
11. Fuel Type	<input type="checkbox"/> Diesel Fuel (# ) (gal/hr)	<input checked="" type="checkbox"/> Natural Gas (cf/hr)	<input type="checkbox"/> Coal (unit: /hr)	<input type="checkbox"/> Other Fuels (unit: /hr)
12. Full Load Consumption Rate		78,600 cf/hr		
13. Actual Consumption Rate		78,600 cf/hr		
14. Fuel Heat Content (Btu/unit, LHV)		1,020 Btu/cf		
15. Sulfur Content wt%		N/A		
16. Ash Content wt%		N/A		
STEAM DESCRIPTION AND SPECIFICATIONS				
17. Steam Heat Content	NA	NA		
18. Steam Temperature (°F)	N/A	N/A		
19. Steam Pressure (psi)	N/A	N/A		
20. Steam Type	N/A	N/A	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated
OPERATING LIMITS & SCHEDULE				
21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.): 1.0E9 SCF natural gas per year total for 3 steam plant natural gas boilers combined.				

22. Operating Schedule (hours/day, months/year, etc.): 8760 hrs/yr

		<b>DEQ AIR QUALITY PROGRAM</b> 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>		<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 3 4/5/2007									
Please see instructions on page 2 before filling out the form.													
Company Name:		University of Idaho											
Facility Name:		University of Idaho											
Facility ID No.:		057-00025											
Brief Project Description:		Permit existing natural gas-fired boiler (S-BC)											
<b>SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES</b>													
1.	2.	3.											
		PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Solid Fuels wood-waste fired boiler (S-BA)	S-BA/S-BC	17.24	75.52	2.21	9.68	15.17	71.63	5.75	164.00	1.50	6.58		
Cleaver-Brooks natural gas-fired boiler (S-BB)	S-BB	0.62	1.54	0.05	0.12	8.09	20.22	6.80	16.99	0.45	1.11		
Babcock & Wilcox natural gas-fired boiler (S-BC)	S-BA/S-BC	0.59	1.46	0.05	0.12	7.70	19.26	6.48	16.18	0.42	1.06		
Combustion Engineering natural gas-fired boiler (S-BD)	S-BD	0.32	0.80	0.03	0.06	4.20	10.51	3.53	8.83	0.23	0.58		
Diesel Fired Electrical generator engine (SG-01)	SG-01	1.15	0.29	1.07	0.27	16.32	4.08	3.52	0.88	1.33	0.33		
Diesel Fired Electrical generator engine (SG-02)	SG-02	1.02	0.26	0.96	0.24	14.55	3.64	3.14	0.78	1.19	0.30		
Diesel Fired Electrical generator engine (SG-03)	SG-03	1.46	0.36	1.36	0.34	20.73	5.18	4.47	1.12	1.69	0.42		
Insignificant Sources	N/A	0.45	1.99	0.11	0.49	7.13	31.23	4.03	17.67	1.13	4.96		
<b>Total</b>		22.85	82.22	5.84	11.32	93.89	165.75	37.72	226.45	7.94	15.34		



	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>		<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 3 4/5/2007												
	Please see instructions on page 2 before filling out the form.														
Company Name:		University of Idaho													
Facility Name:		University of Idaho													
Facility ID No.:		057-00025													
Brief Project Description:		Permit existing natural gas-fired boiler (S-BC)													
<b>SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES</b>															
1.		2.		3.											
				PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
Emissions units		Stack ID		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)															


**Instructions for Form EI-CP1**


**This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.**

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of all emission units at the facility. This name must match names on other submittals to IDEQ and within this application.
2. Provide the identification number for the stack which the emission unit exits.
3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this point source. In this form, emission rates for a point source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

**NOTE:** Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>	<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 2 4/5/2007											
<i>Please see instructions on page 2 before filling out the form.</i>													
Company Name:		University of Idaho											
Facility Name:		University of Idaho											
Facility ID No.:		057-00025											
Brief Project Description:		Permit existing natural gas-fired boiler (S-BC)											
<b>SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES</b>													
1.	2.	3.											
Fugitive Source Name	Fugitive ID	PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Fugitive Source(s)													
Paved/Unpaved Road Fugitive Sources		10.58	46.34										
Paved/Unpaved Parking Lot Fugitive Sources		2.01	8.81										
Miscellaneous Fugitive Sources		0.88	3.84										
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total		13.47	58.99										

	<b>DEQ AIR QUALITY PROGRAM</b> 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>	<b>PERMIT TO CONSTRUCT APPLICATION</b> <div style="text-align: right; font-size: small;">Revision 2 4/5/2007</div>																																				
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Company Name:	University of Idaho																																					
Facility Name:	University of Idaho																																					
Facility ID No.:	057-00025																																					
Brief Project Description:	Permit existing natural gas-fired boiler (S-BC)																																					
<b>SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES</b>																																						
1.	2.	3.																																				
Fugitive Source Name	Fugitive ID	<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th colspan="2" style="text-align: center;">PM<sub>10</sub></th> <th colspan="2" style="text-align: center;">SO<sub>2</sub></th> <th colspan="2" style="text-align: center;">NO<sub>x</sub></th> <th colspan="2" style="text-align: center;">CO</th> <th colspan="2" style="text-align: center;">VOC</th> <th colspan="2" style="text-align: center;">Lead</th> </tr> <tr> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> <th style="text-align: center;">lb/hr</th> <th style="text-align: center;">T/yr</th> </tr> </thead> <tbody> <tr> <td colspan="12" style="text-align: center;">Fugitive Source(s)</td> </tr> </tbody> </table>	PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	Fugitive Source(s)											
PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead																												
lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr																											
Fugitive Source(s)																																						

**Instructions for Form EI-CP2**


**This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.**


Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

Fugitive emissions are those emissions that cannot reasonably be made to pass through a stack or vent or equivalent opening. Examples include coal piles, unpaved roads, etc. Fugitive emission sources at your plant must be included in this form.

1. Provide the name of all fugitive sources at the facility. This name must match names on other submittals to IDEQ and within this application.
2. Provide the identification number for the fugitive source. This ID number should match ID numbers on other submittals to IDEQ and within this application.
3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this fugitive source. In this form, emission rates for a fugitive source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

**NOTE:** Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>		<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 3 4/5/2007										
	Please see instructions on page 2 before filling out the form.												
Company Name:		University of Idaho											
Facility Name:		University of Idaho											
Facility ID No.:		057-00025											
Brief Project Description:		Permit existing natural gas-fired boiler (S-BC)											
<b>SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES</b>													
1.	2.	3.											
Emissions units	Stack ID	PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Babcock & Wilcox natural gas-fired boiler (S-BC)	S-BA/S-BC	0.59	1.46	0.047	0.12	7.7	19.26	6.48	16.18	0.42	1.06	N/A	N/A
name of the emissions unit2													
name of the emissions unit3													
name of the emissions unit4													
name of the emissions unit5													
name of the emissions unit6													
name of the emissions unit7													
name of the emissions unit8													
name of the emissions unit9													
name of the emissions unit10													
name of the emissions unit11													
name of the emissions unit12													
name of the emissions unit13													
name of the emissions unit14													
name of the emissions unit15													
name of the emissions unit16													
name of the emissions unit17													
name of the emissions unit18													
name of the emissions unit19													
name of the emissions unit20													
name of the emissions unit21													
(insert more rows as needed)													
<b>Total</b>		0.59	1.46	0.05	0.12	7.70	19.26	6.48	16.18	0.42	1.06		

	<b>IDEQ AIR QUALITY PROGRAM</b> 1410 N. Hilton, Boise, ID 83706 For assistance, call the <b>Air Permit Hotline - 1-877-5PERMIT</b>	<b>PERMIT TO CONSTRUCT APPLICATION</b> <div style="text-align: right;">Revision 3 4/5/2007</div>																								
<i>Please see instructions on page 2 before filling out the form.</i>																										
Company Name:	University of Idaho																									
Facility Name:	University of Idaho																									
Facility ID No.:	057-00025																									
Brief Project Description:	Permit existing natural gas-fired boiler (S-BC)																									
<b>SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES</b>																										
<b>1.</b>	<b>2.</b>	<b>3.</b>																								
<b>Emissions units</b>	<b>Stack ID</b>	<table border="1" style="width:100%; border-collapse: collapse; margin: 0;"> <tr> <th colspan="2" style="padding: 2px;">PM<sub>10</sub></th> <th colspan="2" style="padding: 2px;">SO<sub>2</sub></th> <th colspan="2" style="padding: 2px;">NO<sub>x</sub></th> <th colspan="2" style="padding: 2px;">CO</th> <th colspan="2" style="padding: 2px;">VOC</th> <th colspan="2" style="padding: 2px;">Lead</th> </tr> <tr> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> <th style="padding: 2px;">lb/hr</th> <th style="padding: 2px;">T/yr</th> </tr> </table>	PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead																
lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr															
<b>Point Source(s)</b>																										

**Instructions for Form EI-CP3**

**This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.**

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.
2. Provide the identification number for the stack which the emission unit exits.
3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this emission unit. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

**NOTE:** Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.



IDEQ AIR QUALITY PROGRAM  
1410 N. Hilton, Boise, ID 83706  
For assistance, call the  
Air Permit Hotline - 1-877-5PERMIT

**PERMIT TO CONSTRUCT APPLICATION**

Revision 3  
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name: University of Idaho

Facility Name: University of Idaho

Facility ID No.: 057-00025

Brief Project Description: Permit existing natural gas-fired boiler (S-BC)

**SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES**

1.	2.	3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
		PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
Fugitive Source Name	Fugitive ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Fugitive Source(s)													
name of fugitive source1													
name of fugitive source2													
name of fugitive source3													
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total													

	IDEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the Air Permit Hotline - 1-877-5PERMIT	<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 3 4/5/2007
	Please see instructions on page 2 before filling out the form.	

Company Name:	University of Idaho
Facility Name:	University of Idaho
Facility ID No.:	057-00025
Brief Project Description:	Permit existing natural gas-fired boiler (S-BC)

### SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES

1.	2.	3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
		PM <sub>10</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead	
Fugitive Source Name	Fugitive ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Fugitive Source(s)													

### Instructions for Form EI-CP4

This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID Number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.
2. Provide the identification number for the fugitive source. This ID should match IDs on other submittals to IDEQ and within this application.
3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this fugitive source. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the fugitive source has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.



**DEQ AIR QUALITY PROGRAM**  
 1410 N. Hilton, Boise, ID 83706  
 For assistance, call the  
**Air Permit Hotline – 1-877-5PERMIT**

# PERMIT TO CONSTRUCT APPLICATION

Revision 3  
 03/26/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: University of Idaho	Facility Name: University of Idaho	Facility ID No: 057-00025
Brief Project Description: Permit existing natural gas-fired boiler (S-BC).		
APPLICABILITY DETERMINATION		
1. Will this project be subject to 1990 CAA Section 112(g)? (Case-by-Case MACT)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES*
* If YES, applicant must submit an application for a case-by-case MACT determination [IAC 567 22-1(3)"b" (8)]		
2. Will this project be subject to a New Source Performance Standard? (40 CFR part 60)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES*
*If YES, please identify sub-part: _____		
3. Will this project be subject to a MACT ( <u>M</u> aximum <u>A</u> chievable <u>C</u> ontrol <u>T</u> echnology) regulation? (40 CFR part 63)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES*
*If YES, please identify sub-part: _____		
THIS ONLY APPLIES IF THE PROJECT EMITS A HAZARDOUS AIR POLLUTANT		
4. Will this project be subject to a NESHAP ( <u>N</u> ational <u>E</u> mission <u>S</u> tandards for <u>H</u> azardous <u>A</u> ir <u>P</u> ollutants) regulation? (40 CFR part 61)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES*
*If YES, please identify sub-part: _____		
5. Will this project be subject to PSD ( <u>P</u> revention of <u>S</u> ignificant <u>D</u> eterioration)? (40 CFR section 52.21)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6. Was netting done for this project to avoid PSD?	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES*
*If YES, please attach netting calculations		
<b>IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT          1-877-5PERMIT</b>		



**APPENDIX B: UNIVERSITY OF IDAHO EMISSIONS  
INVENTORY**

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## Appendix B Emissions Summary

University of Idaho  
Emission Inventory  
Summary Page

Facility-Wide Annual PTE										
Emitting Unit	PM <sub>10</sub>		SO <sub>2</sub>		CO		NO <sub>x</sub>		VOC	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Solid Fuels wood-waste fired boiler (S-BA)	17.24	75.52	2.21	9.68	5.75	164.00	15.17	71.63	1.50	6.58
Cleaver-Brooks natural gas-fired boiler (S-BB)	0.62	1.54	0.05	0.12	6.80	16.99	8.09	20.22	0.45	1.11
Babcock & Wilcox natural gas-fired boiler (S-BC)	0.59	1.46	0.05	0.12	6.48	16.18	7.70	19.26	0.42	1.06
Combustion Engineering natural gas-fired boiler (S-BD)	0.32	0.80	0.03	0.06	3.53	8.83	4.20	10.51	0.23	0.58
Diesel-fired electrical generator engine (SG-01)	1.15	0.29	1.07	0.27	3.52	0.88	16.32	4.08	1.33	0.33
Diesel-fired electrical generator engine (SG-02)	1.02	0.26	0.96	0.24	3.14	0.78	14.55	3.64	1.19	0.30
Diesel-fired electrical generator engine (SG-03)	1.46	0.36	1.36	0.34	4.47	1.12	20.73	5.18	1.69	0.42
Insignificant sources	0.45	1.99	0.11	0.49	4.03	17.67	7.13	31.23	1.13	4.96
Paved/unpaved road fugitive sources	10.58	46.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paved/unpaved parking lot fugitive sources	2.01	8.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous fugitive sources	0.88	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Emissions:</b>	<b>33.43</b>	<b>128.56</b>	<b>5.84</b>	<b>11.31</b>	<b>37.71</b>	<b>226.44</b>	<b>93.89</b>	<b>165.76</b>	<b>7.95</b>	<b>15.34</b>

## Appendix B Significant Sources

University of Idaho  
Emission Inventory  
Significant Sources

Significant Sources Annual PTE (See Next Page for Emission Factors and Calculations for Boilers, Furnaces, and Engines)																				
Significant Sources	Rated Capacity (MMBtu/hr)	Capacity Limit (lb steam/hr) <sup>a</sup>	PM			PM <sub>10</sub>			SO <sub>2</sub>			CO			NO <sub>x</sub>			VOC		
			EF (lb/MMBtu)	lb/hr	ton/yr	EF (lb/1k lb steam) or (lb/MMBtu)	lb/hr	ton/yr	EF (lb/MMBtu)	lb/hr	ton/yr	EF (lb/1k lb steam) or	lb/hr	ton/yr	EF (lb/1k lb steam) or	lb/hr	ton/yr	EF (lb/MMBtu)	lb/hr	ton/yr
Solid Fuels wood-waste fired boiler (S-BA)	88.4	66,800	0.1100	7.35	75.52	0.1100	7.35	75.52	0.0250	2.21	9.68	0.0861	5.75	25.19	0.2271	15.17	71.63	0.0170	1.50	6.58
Cleaver-Brooks natural gas-fired boiler (S-BB)	82.5	N/A	0.0075	0.62	1.54	0.0075	0.62	1.54	0.0006	0.05	0.12	0.0824	6.80	16.99	0.0980	8.09	20.22	0.0054	0.45	1.11
Babcock & Wilcox natural gas-fired boiler (S-BC)	78.6	N/A	0.0075	0.59	1.46	0.0075	0.59	1.46	0.0006	0.05	0.12	0.0824	6.48	16.18	0.0980	7.70	19.26	0.0054	0.42	1.06
Combustion Engineering natural gas-fired boiler (S-BD)	42.9	N/A	0.0075	0.32	0.80	0.0075	0.32	0.80	0.0006	0.03	0.06	0.0824	3.53	8.83	0.0980	4.20	10.51	0.0054	0.23	0.58
Diesel-fired electrical generator engine (SG-01) <sup>a</sup>	3.7	N/A	0.3100	1.15	0.29	0.3100	1.15	0.29	0.2900	1.07	0.27	0.9500	3.52	0.88	4.4100	16.32	4.08	0.3600	1.33	0.33
Diesel-fired electrical generator engine (SG-02) <sup>a</sup>	3.3	N/A	0.3100	1.02	0.26	0.3100	1.02	0.26	0.2900	0.96	0.24	0.9500	3.14	0.78	4.4100	14.55	3.64	0.3600	1.19	0.30
Diesel-fired electrical generator engine (SG-03) <sup>a</sup>	4.7	N/A	0.3100	1.46	0.36	0.3100	1.46	0.36	0.2900	1.36	0.34	0.9500	4.47	1.12	4.4100	20.73	5.18	0.3600	1.69	0.42
Total =				12.51	80.23		12.51	80.23		5.73	10.83		33.68	69.97		86.76	134.53		6.82	10.39

<sup>a</sup>Note: The current permit application proposes limiting operating hours for units SG-01, -02, and -03 to 500 hrs/yr.

<sup>a</sup>Wood-waste-fired boiler capacity limit is proposed. The current limit is 52,300 pounds of steam per hour.

# Appendix B

## Emission Factors for Boilers, Furnaces, and Engines

### University of Idaho Emission Inventory Emission Factors

#### Solid Fuels Wood-waste Fired Boiler

Solid Fuels Wood-waste Fired Boiler (S-BA)	NOx EF (lb/1000 lb steam) <sup>a</sup>	SO <sub>2</sub> EF (lb/MMBtu)	PM-10 EF (lb/1000 lb steam) <sup>b</sup>	CO EF (lb/1000 lb steam) <sup>c</sup>	VOC EF (lb/MMBtu)
Assume bark/bark and wet wood/wet wood - fired boiler	0.2271	0.025	0.1100	0.0861	0.0170

AP-42, Table 1.6-2,3, September 2003 (SO<sub>2</sub> and VOC emission factors)

<sup>a</sup>NOx Emission factor was referenced from Table 3.5 in the Tier I Operating Permit (T1-060203)

<sup>b</sup>PM-10 Emission factor was calculated from the average PM stack test data taken on January 5, 2005

PM-10 is a subset of TOTAL PM; it is therefore conservative to estimate the PM-10 emissions as equal to the TOTAL PM emissions.

<sup>c</sup>CO emission factor was calculated from the highest emission rate recorded in the stack test data taken on March 23, 1998 (Run #2)

Calculation: 5.42 lbs CO/hr / 63,000 lbs steam/hr = 0.0861 lb CO/1000 lbs steam

#### Small Boilers, Furnaces, and Hot Water Heaters Emission Factors

Assumptions:

Hot water heaters use the same emission factors as small furnaces at < 0.3 MMBtu/hr and at >0.3 MMBtu/hr, apply the small boiler emission factors.

Calculation Method for Potential Emissions Inventory

Emission (ton/yr) = (Rated Heat Input Capacity in MMBtu/hr) \* (Pollutant Emission Factor in lb/MMBtu) \* (Operating Hours in hr/yr) / (2000 lb/ton)

#### Natural Gas-Fired Boilers Emission Factors

Small Boilers < 100 MMBtu/hr Natural Gas-Fired	NOx EF Uncontrolled (lb/MMCF)	SO <sub>2</sub> EF (lb/MMCF)	PM-10 EF (lb/MMCF)	CO EF (lb/MMCF)	VOC EF (lb/MMCF)
	100.0	0.6	7.6	84.0	5.5
Assuming a heat value of 1,020 Btu/scf: To convert (lb/MMCF) factors to lb/MMBtu, divide the lb/MMCF factor by 1,020 Btu/scf. PM-10 is front + back half	NOx EF Uncontrolled (lb/MMBtu)	SO <sub>2</sub> EF (lb/MMBtu)	PM-10 EF (lb/MMBtu)	CO EF (lb/MMBtu)	VOC EF (lb/MMBtu)
	0.098	0.0006	0.0075	0.0824	0.0054

Referenced AP-42, Natural Gas Combustion, Table 1.4-1,2, July 1998

#### Natural Gas-Fired Furnaces Emission Factors

Residential Furnaces <0.3 MMBtu/hr Natural Gas-Fired	NOx EF Uncontrolled	SO <sub>2</sub> EF (lb/MMCF)	PM-10 EF (lb/MMCF)	CO EF (lb/MMCF)	VOC EF (lb/MMCF)
	94.0	0.6	7.6	40.0	5.5
Assuming a heat value of 1,020 Btu/scf: To convert (lb/MMCF) factors to lb/MMBtu, divide the lb/MMCF factor by 1,020 Btu/scf.	NOx EF Uncontrolled (lb/MMBtu)	SO <sub>2</sub> EF (lb/MMBtu)	PM-10 EF (lb/MMBtu)	CO EF (lb/MMBtu)	VOC EF (lb/MMBtu)
	0.0922	0.0006	0.0075	0.0392	0.0054

Referenced AP-42, Natural Gas Combustion, Table 1.4-1,2, July 1998

#### Diesel Engine Emission Factors

Uncontrolled engine emissions based on heat content of fuel to the engine	NOx EF (lb/MMBtu)	SO <sub>2</sub> EF (lb/MMBtu)	PM-10 EF (lb/MMBtu)	CO EF (lb/MMBtu)	VOC EF (lb/MMBtu)
Note: Refueling and evaporative organic compound emissions were excluded from the VOC emission factor	4.41	0.290	0.310	0.95	0.36

Referenced AP-42, Gasoline and Diesel Industrial Engines, Table 3.3, October 1996

## Appendix B Natural Gas Boilers Emission Summary

University of Idaho  
Emission Inventory  
Natural Gas Boilers

### Annual Emissions

Natural Gas Boilers	Rated Capacity (MMBtu/hr)	Ratio of Individual Boiler Input to Total Capacity	Natural Gas Consumption per Boiler MMSCF/year	PM <sub>10</sub> Emission Factor lbs/MMScf	PM <sub>10</sub> Tons/year	SO <sub>2</sub> Emission Factor lbs/MMScf	SO <sub>2</sub> Tons/year	CO Emission Factor lbs/MMScf	CO Tons/year	NOx Emission Factor lbs/MMScf	NOx Tons/year	VOC Emission Factor lbs/MMScf	VOC Tons/year
Cleaver-Brooks natural gas-fired boiler (S-BB)	82.5	0.404	404.41	7.6	1.54	0.6	0.12	84.0	16.99	100.0	20.22	5.5	1.11
Babcock & Wilcox natural gas- fired boiler (S-BC)	78.6	0.385	385.29	7.6	1.46	0.6	0.12	84.0	16.18	100.0	19.26	5.5	1.06
Combustion Engineering natural gas-fired boiler (S-BD)	42.9	0.210	210.29	7.6	0.80	0.6	0.06	84.0	8.83	100.0	10.51	5.5	0.58
<b>Totals</b>	<b>204.0</b>	<b>1</b>	<b>1000</b>										

Annual Emission calculations are based on a requested permit limit of  $1.0 \times 10^9$  Scf of natural gas. This limit is the sum total of all gas going to the three boilers. The University is not requesting an individual natural gas limit per boiler. Annual emissions are limited by the proposed permit limit. For purposes of this inventory, the total gas flow has been divided between the three boilers based on the boiler size. These emissions are not proposed limits.

Assumed heat value                      1020 Btu/scf  
Total Heat Input for the 3 boilers      2.04E+08 Btu/hr  
Potential Gas Consumption              2.00E+05 Scf/hr  
Hours per year                              8760 hours / year  
Annual Potential Gas  
Consumption                              1.752E+09 SCF / year

Requested Permit Limit on Total Natural Gas Consumption	1.000E+09 SCF/year or 1000 MMSCF/year
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### Hourly Emissions

Natural Gas Boilers	Rated Capacity (MMBtu/hr)	PM <sub>10</sub> Emission Factor lbs/MMBtu	PM <sub>10</sub> Lbs/hr	SO <sub>2</sub> Emission Factor lbs/MMBtu	SO <sub>2</sub> Lbs/hr	CO Emission Factor lbs/MMBtu	CO Lbs/hr	NOx Emission Factor lbs/MMBtu	NOx Lbs/hr	VOC Emission Factor lbs/MMBtu	VOC Lbs/hr
Cleaver-Brooks natural gas-fired boiler (S-BB)	82.5	0.0075	0.62	0.0006	0.05	0.0824	6.80	0.098	8.09	0.0054	0.45
Babcock & Wilcox natural gas- fired boiler (S-BC)	78.6	0.0075	0.59	0.0006	0.05	0.0824	6.48	0.098	7.70	0.0054	0.42
Combustion Engineering natural gas-fired boiler (S-BD)	42.9	0.0075	0.32	0.0006	0.03	0.0824	3.53	0.098	4.20	0.0054	0.23

Hourly Emission calculations are based off the full heat input rate to each individual boiler.

## Appendix B Insignificant Sources

### University of Idaho Emission Inventory Insignificant Emission Units

Type	Rated Capacity (MMBtu/hr)	NOx (tons/yr)	SO2 (tons/yr)	PM-10 (tons/yr)	CO (tons/yr)	VOC (tons/yr)	Building
<b>Miscellaneous Insignificant Sources (without emission calculations that qualify for a permit shield)</b>							
Storage tanks containing VOC products less than 10,000 gallon storage capacity							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 3
Printing and silk-screening activities							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 12
Water chlorination facilities less than 20 MMGal/day							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 16
Paint booths less than 2 gallons per day							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 17
Smokehouses under 20 square feet							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 21
Treated wastewater effluent chlorination facility less than 1 MMGal/day							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 28
Indoor firing range							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 30
Gas storage area and gas cabinets							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 30
Fume hoods							Insignificant Activities IDAPA 58.01.01(a)(i) Citation 63
Indoor swimming pool							Insignificant Activities IDAPA 58.01.01(b)(i) Citation 30
<b>Emergency Generators</b>							
Natural gas-powered emergency generator	2.368	1.877	3.48E-04	0.023	0.229	0.971	College of Forestry
Natural gas-powered emergency generator	1.138	0.902	1.67E-04	0.011	0.110	0.467	Engineering/Physics
Natural gas-powered emergency generator	0.696	0.552	1.02E-04	0.007	0.067	0.285	Library
Natural gas-powered emergency generator	0.557	0.441	8.19E-05	0.005	0.054	0.228	Kibbie Dome
Natural gas-powered emergency generator	0.418	0.331	6.14E-05	0.004	0.040	0.171	Theophilus Tower
Natural gas-powered emergency generator	0.33	0.262	4.85E-05	0.003	0.032	0.135	Administration
Natural gas-powered emergency generator	0.277	0.220	4.07E-05	0.003	0.027	0.114	McConnell Hall
Natural gas-powered emergency generator	0.205	0.084	4.31E-03	0.005	3.213	0.143	Student Union Bldg.
Natural gas-powered emergency generator	0.205	0.162	3.01E-05	0.002	0.020	0.084	Student Recreation Center
Natural gas-powered emergency generator	0.342	0.271	5.02E-05	0.003	0.033	0.140	Living/Learning Center
Natural gas-powered emergency generator	0.068	0.054	1.00E-05	0.001	0.007	0.028	Gauss-Johnson Engineering
Natural gas-powered emergency generator	0.171	0.135	2.51E-05	0.002	0.016	0.070	Facilities Services
Natural gas-powered emergency generator	0.427	0.338	6.28E-05	0.004	0.041	0.175	Idaho Commons
Natural gas-powered emergency generator	0.120	0.095	1.76E-05	0.001	0.012	0.049	Brink/Phinney Halls
Natural gas-powered emergency generator	0.342	0.271	5.02E-05	0.003	0.033	0.140	AG Science Bldg.
Natural gas-powered emergency generator	0.512	0.406	7.53E-05	0.005	0.049	0.210	AG Biotech
*Based on 500 hours	Total =	6.400	0.005	0.082	3.982	3.411	
<b>Biofuels Engine Test Facility</b>							
Biofuels test engine	0.055	1.062	0.070	0.075	0.229	0.087	Engineering Isotopes Lab
Biofuels test engine	0.054	1.043	0.069	0.073	0.225	0.085	Engineering Isotopes Lab
Biofuels test engine	0.041	0.792	0.052	0.056	0.171	0.065	Engineering Isotopes Lab
*Based off of 8760 hours	Total =	2.897	0.191	0.204	0.624	0.237	
<b>Emergency Generators</b>							
Diesel-powered emergency generator	0.157	0.173	0.011	0.012	0.037	0.014	Martin Lab
Diesel-powered emergency generator	0.596	0.657	0.043	0.046	0.142	0.054	Wallace Residence Center
Diesel-powered emergency generator	0.157	0.173	0.011	0.012	0.037	0.014	Memorial Gym
Diesel-powered emergency generator	0.34	0.375	0.025	0.026	0.081	0.031	FM Electric Shop
Diesel-powered emergency generator	0.102	0.113	0.007	0.008	0.024	0.009	Aquaculture Institute
Diesel-powered emergency generator	0.102	0.113	0.007	0.008	0.024	0.009	UI Dairy Milking Parlor
Diesel-powered emergency generator	0.102	0.113	0.007	0.008	0.024	0.009	Aquaculture Wet Lab
*Based on 500 hours	Total =	1.717	0.113	0.121	0.370	0.140	
<b>Fire Pumps</b>							
Diesel-powered pump	0.573	0.632	0.042	0.044	0.136	0.052	Water System Pumphouse
Diesel-powered pump	0.185	0.204	0.013	0.014	0.044	0.017	Kibbie Dome
*Based on 500 hours	Total =	0.836	0.055	0.059	0.180	0.068	
<b>Small Boilers</b>							
Natural gas-fired space heating boiler	2.47	1.060	0.006	0.081	0.891	0.058	Holm Research Center
Natural gas-fired space heating boiler	2.47	1.060	0.006	0.081	0.891	0.058	Holm Research Center
Natural gas-fired space heating boiler	1.075	0.461	0.003	0.035	0.388	0.025	Dairy Milking Parlor/Barn 1
Natural gas-fired space heating boiler	1	0.429	0.003	0.033	0.361	0.024	Martin Lab
Natural gas-fired space heating boiler	1	0.429	0.003	0.033	0.361	0.024	Martin Lab
Natural gas-fired space heating boiler	0.672	0.288	0.002	0.022	0.243	0.016	Aquaculture Institute
Natural gas-fired space heating boiler	0.509	0.218	0.001	0.017	0.184	0.012	Kibbie Dome
Natural gas-fired space heating boiler	0.5	0.215	0.001	0.016	0.180	0.012	President's Residence
Natural gas-fired space heating boiler	0.318	0.136	0.001	0.010	0.115	0.008	Kibbie East End Addition
Natural gas-fired space heating boiler	0.225	0.097	0.001	0.007	0.081	0.005	Dairy Milking Parlor/Barn 2
Natural gas-fired space heating boiler	0.225	0.097	0.001	0.007	0.081	0.005	Dairy Milking Parlor/Barn 2
Natural gas-fired space heating boiler	0.154	0.066	0.000	0.005	0.056	0.004	Campus Police Station
Natural gas-fired space heating boiler	0.051	0.022	0.000	0.002	0.018	0.001	Targhee Hall
Natural gas-fired boiler #1	0.562	0.241	0.001	0.018	0.203	0.013	Facilities Services
Natural gas-fired boiler #2	0.562	0.241	0.001	0.018	0.203	0.013	Facilities Services
Natural gas-fired water heater (2 units)	0.08	0.032	0.000	0.003	0.014	0.002	Early Child Center
Natural gas-fired water heater	0.1999	0.081	0.001	0.007	0.034	0.005	Facilities Services
Natural gas-fired water heater	0.154	0.062	0.000	0.005	0.026	0.004	Facilities Services
Natural gas-fired infrared radiant heater (10 units)	1.000	0.404	0.003	0.033	0.172	0.024	Facilities Services Shop
Natural gas-fired unit heaters (2 units)	0.0232	0.009	0.000	0.001	0.004	0.001	Facilities Greenhouse
Natural gas-fired unit heaters	0.008	0.003	0.000	0.000	0.001	0.000	Facilities Greenhouse
Natural gas-fired unit heaters (2 units)	0.28	0.113	0.001	0.009	0.048	0.007	Facilities Storage
Natural gas-fired unit heaters (9 units)	1.08	0.436	0.003	0.035	0.185	0.026	Facilities Services Shops
Natural gas-fired unit heaters (8 units)	0.61	0.246	0.002	0.020	0.105	0.014	Recycling/Surplus
*Based on 8760 hours	Total =	6.449	0.040	0.500	4.846	0.360	

## Appendix B Insignificant Sources

Type	Rated Capacity (MMBtu/hr)	NOx (tons/yr)	SO2 (tons/yr)	PM-10 (tons/yr)	CO (tons/yr)	VOC (tons/yr)	Building
<b>Small Space Heating Furnaces</b>							
Natural gas-fired space heating furnace	0.05	0.020	0.000	0.002	0.009	0.001	Holm Research 3
Natural gas-fired space heating furnace	0.075	0.030	0.000	0.002	0.013	0.002	Holm Research 4
Natural gas-fired space heating furnace	0.045	0.018	0.000	0.001	0.008	0.001	Yard 1 Storage
Natural gas-fired space heating furnace	0.1	0.040	0.000	0.003	0.017	0.002	U of I Foundation Office
Natural gas-fired space heating furnace	0.51	0.219	0.001	0.017	0.184	0.012	Meat Lab/Pavilion 2
Natural gas-fired space heating furnace	0.5	0.215	0.001	0.016	0.180	0.012	Targhee Hall
Natural gas-fired space heating furnace	0.414	0.178	0.001	0.014	0.149	0.010	Bus. Technology Incubator 1
Natural gas-fired space heating furnace	0.4	0.172	0.001	0.013	0.144	0.009	N. Campus Center 4
Natural gas-fired space heating furnace	0.4	0.172	0.001	0.013	0.144	0.009	N. Campus Center 4
Natural gas-fired space heating furnace	0.3	0.121	0.001	0.010	0.052	0.007	Human Resources/Purch.
Natural gas-fired space heating furnace	0.255	0.103	0.001	0.008	0.044	0.006	Industrial Education 6
Natural gas-fired space heating furnace	0.25	0.101	0.001	0.008	0.043	0.006	Family Housing 1
Natural gas-fired space heating furnace	0.25	0.101	0.001	0.008	0.043	0.006	Industrial Education 2
Natural gas-fired space heating furnace	0.24	0.097	0.001	0.008	0.041	0.006	N. Campus Center 1
Natural gas-fired space heating furnace	0.24	0.097	0.001	0.008	0.041	0.006	N. Campus Center 1
Natural gas-fired space heating furnace	0.22	0.089	0.001	0.007	0.038	0.005	Motor Pool/Garage 2
Natural gas-fired space heating furnace	0.215	0.087	0.001	0.007	0.037	0.005	Industrial Education 7
Natural gas-fired space heating furnace	0.2	0.081	0.001	0.007	0.034	0.005	Golf Course Clb Hse 3
Natural gas-fired space heating furnace (3 units)	0.6	0.242	0.002	0.020	0.103	0.014	Meat Lab/Pavilion 1
Natural gas-fired space heating furnace	0.16	0.065	0.000	0.005	0.027	0.004	Industrial Education 5
Natural gas-fired space heating furnace	0.15	0.061	0.000	0.005	0.026	0.004	N. Campus Center 3
Natural gas-fired space heating furnace	0.137	0.055	0.000	0.005	0.024	0.003	Golf Course Clb Hse 2
Natural gas-fired space heating furnace	0.13	0.052	0.000	0.004	0.022	0.003	Industrial Education 4
Natural gas-fired space heating furnace	0.12	0.048	0.000	0.004	0.021	0.003	AG Publications
Natural gas-fired space heating furnace (2 units)	0.24	0.097	0.001	0.008	0.041	0.006	Motor Pool/Garage 3
Natural gas-fired space heating furnace (2 units)	0.24	0.097	0.001	0.008	0.041	0.006	AG Eng. Office 2
Natural gas-fired space heating furnace	0.115	0.046	0.000	0.004	0.020	0.003	Bookstore 3
Natural gas-fired space heating furnace (5 units)	0.5	0.202	0.001	0.016	0.086	0.012	Aquaculture Lab 2
Natural gas-fired space heating furnace (2 units)	0.2	0.081	0.001	0.007	0.034	0.005	Hemo-parasitic Barn
Natural gas-fired space heating furnace	0.1	0.040	0.000	0.003	0.017	0.002	N. Campus Center 3
Natural gas-fired space heating furnace (8 units)	0.72	0.291	0.002	0.024	0.124	0.017	Motor Pool/Garage 4
Diesel-fired space heating furnace	0.09	0.036	0.000	0.003	0.015	0.002	Sheep House
Natural gas-fired space heating furnace (7 units)	0.616	0.249	0.002	0.020	0.106	0.015	Family Housing 2
Natural gas-fired space heating furnace	0.08	0.032	0.000	0.003	0.014	0.002	Bus. Tech. Incubator 3
Natural gas-fired space heating furnace	0.075	0.030	0.000	0.002	0.013	0.002	Industrial Education 3
Natural gas-fired space heating furnace	0.074	0.030	0.000	0.002	0.013	0.002	Bookstore
Natural gas-fired space heating furnace	0.172	0.069	0.000	0.006	0.030	0.004	N. Campus Center 5
Natural gas-fired space heating furnace (2 units)	0.132	0.053	0.000	0.004	0.023	0.003	Family Housing 3
Natural gas-fired space heating furnace	0.06	0.024	0.000	0.002	0.010	0.001	Dairy House
Natural gas-fired space heating furnace	0.06	0.024	0.000	0.002	0.010	0.001	Beef House
Natural gas-fired space heating furnace (9 units)	0.54	0.218	0.001	0.018	0.093	0.013	Bus. Tech. Incubator 2
Natural gas-fired space heating furnace	0.05	0.020	0.000	0.002	0.009	0.001	Bookstore 1
Natural gas-fired space heating furnace (108 units)	4.968	2.006	0.013	0.163	0.853	0.118	Family Housing 4
Natural gas-fired space heating furnace	0.044	0.018	0.000	0.001	0.008	0.001	Motor Pool/Garage 1
Natural gas-fired space heating furnace	0.04	0.016	0.000	0.001	0.007	0.001	Pumphouse
Natural gas-fired space heating furnace	0.04	0.016	0.000	0.001	0.007	0.001	Pumphouse
Natural gas-fired space heating furnace	0.025	0.010	0.000	0.001	0.004	0.001	Aquaculture Lab 1
Natural gas-fired space heating furnace	0.02	0.008	0.000	0.001	0.003	0.000	Industrial Education 1
*Based on 8760 hours	Total =	6.179	0.040	0.498	3.024	0.359	
<b>Domestic Hot Water Heaters</b>							
Natural gas-fired domestic hot water heater	0.199	0.080	0.001	0.007	0.034	0.005	Dairy Milking Parlor
Natural gas-fired domestic hot water heater (108 units)	5.184	2.093	0.014	0.170	0.890	0.123	Family Housing
Natural gas-fired domestic hot water heater	2.4	1.030	0.006	0.079	0.866	0.057	Holm Research
Natural gas-fired domestic hot water heater	0.045	0.018	0.000	0.001	0.008	0.001	Industrial Education
Natural gas-fired hot water heater	3.4	1.459	0.009	0.112	1.227	0.080	Kibbie East End Addition
Natural gas-fired hot water heater	0.199	0.080	0.001	0.007	0.034	0.005	Martin Lab
Natural gas-fired hot water heater	0.5	0.215	0.001	0.016	0.180	0.012	Meats Lab 1
Natural gas-fired hot water heater	0.26	0.105	0.001	0.009	0.045	0.006	Meats Lab 2
Natural gas-fired hot water heater	0.04	0.016	0.000	0.001	0.007	0.001	Motor Pool/Garage
Natural gas-fired hot water heater	0.08	0.032	0.000	0.003	0.014	0.002	President's Residence
Natural gas-fired hot water heater	0.2	0.081	0.001	0.007	0.034	0.005	Targhee Hall
*Based on 8760 hours	Total =	5.211	0.033	0.411	3.339	0.296	
<b>Incinerators</b>							
Natural gas-fired incinerators (2 burners)	1.6	0.687	0.004	0.053	0.577	0.038	Life Science North
Natural gas-fired incinerator	2	0.858	0.005	0.066	0.722	0.047	Holm Research
*Based on 8760 hours	Total =	1.545	0.009	0.118	1.299	0.085	

NOx (tons/yr)	SO2 (tons/yr)	PM-10 (tons/yr)	CO (tons/yr)	VOC (tons/yr)
31.234	0.486	1.992	17.665	4.955

# Appendix B Paved Road Fugitive Emissions

## University of Idaho Emission Inventory Fugitive Emissions - Paved Streets/Roads

Fugitive Dust Emissions from University Streets and Roads - Paved -						
Street Segment	Distance (miles)	Daily Average Traffic		Silt Loading (g/m <sup>2</sup> )	Dust Emissions (lbs/day)	Dust Emissions (tons/yr)
		Number of Vehicles	Source			
Perimeter Drive - HWY 8 to 6th Street	0.28	5,864	C-18-4	0.1	9.83	1.79
Perimeter Drive - 6th Street to Nez Perce Drive	0.54	4,641	D-20-1	0.4	38.66	7.06
Nez Perce Drive	0.54	5,214	D-20-2	0.1	16.86	3.08
Rayburn - Nez Perce Drive to 6th Street	0.41	2,691	D-20-4	0.40	17.02	3.11
Rayburn - Paradise Creek Road to HWY 8	0.13	500	Est.	0.40	1.00	0.18
6th Street Extension	0.50	357	C-18-1	0.40	2.75	0.50
Stadium Drive - 6th Street to Idaho Ave. Extension	0.14	750	Est.	0.40	1.62	0.30
Stadium Drive - Idaho Avenue Extension to Perimeter Drive Road	0.24	750	Est.	0.4	2.78	0.51
Stadium Drive - 6th Street to Paradise Creek	0.09	1,000	Est.	0.4	1.39	0.25
Kibbie - ASUI Activity Center Road	0.61	500	Est.	0.4	4.71	0.86
Paradise Creek Road	0.25	1,500	Est.	0.4	5.79	1.06
6th Street - Perimeter Drive to Line Street	0.31	4,700	C-18-2	0.4	22.48	4.10
7th Street	0.09	750	Est.	0.4	1.04	0.19
Idaho Avenue	0.16	500	Est.	0.4	1.23	0.23
University Avenue	0.12	500	Est.	0.4	0.93	0.17
Narrow Street	0.06	500	Est.	0.4	0.46	0.08
Campus Drive	0.23	2,000	Est.	0.4	7.10	1.30
Campus Walkway System	1.14	500	Est.	0.015	0.80	0.15
Married Student Housing System	0.78	250	Est.	0.4	3.01	0.55
Idaho Avenue	0.16	250	Est.	0.4	0.62	0.11
Alley - Deakin Avenue to Elm Street	0.06	50	Est.	0.4	0.05	0.01
Farm Road - 6th Street Extension to HWY 8	0.13	150	Est.	0.4	0.30	0.05
<b>Total* =</b>						<b>27.16</b>

\*Note: Source of number of vehicles - An alpha-numeric listing denotes the information was obtained from the City of Moscow street surveys in 1997/1998. "Est." indicates the number of vehicles for the listed street segment is an estimate. The school enrollment increased by 6% from 1997/1998 to 2006/2007; therefore, a 6% increase in emissions was added to the calculated total.

Paved Road  
Fugitive Emissions

$$E = \left[ k \left( \frac{sL}{2} \right)^{0.65} \left( \frac{W}{3} \right)^{1.5} - C \right]$$

Ref: AP-42, Paved Roads, Section 13.2.1, Eq.(1), 11/06

Variables	Value	Units/Comments
k =	0.016	lb/VMT - Value for PM <sub>10</sub>
sL =	0.1	for > 5,000 vehicles per day
=	0.4	for < 5,000 vehicles per day
=	0.015	for limited access areas
W =	6	tons
C =	0.00047	Ref: AP-42 Table 13.2.1-2



## Appendix B

### Unpaved Road Fugitive Emissions

University of Idaho  
Emission Inventory  
Fugitive Emissions - Unpaved Streets/Roads

Fugitive Dust Emissions from University Streets and Roads - Unpaved -					
Street Segment	Distance (miles)	Daily Average Traffic		Dust Emissions (lbs/day)	Dust Emissions (tons/yr)
		Number of Vehicles	Source		
West Farm Roads	2.20	50	Est.	64.59	11.79
Dairy Farm Roads	0.34	50	Est.	9.98	1.82
Sheep Farm Roads	0.60	50	Est.	17.62	3.21
Wicks Field Road	0.13	5	Est.	0.38	0.07
<b>Total* =</b>					<b>16.89</b>

\*Note: Source of number of vehicles - An alpha-numeric listing denotes the information was obtained from the City of Moscow street surveys in 1997/1998. "Est." indicates the number of vehicles for the listed street segment is an estimate. The school enrollment increased by 6% from 1997/1998 to 2006/2007; therefore, a 6% increase in emissions was added to the calculated total.

Unpaved Road  
Fugitive Emissions

$$E = \left[ \frac{k \left( \frac{s}{12} \right)^a \left( \frac{S}{30} \right)^d}{\left( \frac{M}{0.5} \right)^c} - C \right] \left( \frac{365 - p}{365} \right)$$

Ref: AP-42, Unpaved Roads, Section 13.2.2-4, Eq. (1b), 11/06

Variables	PM-10	Units
empirical constants, $a =$	1	N/A
$c =$	0.2	N/A
$d =$	0.5	N/A
$k =$	1.8	lb/VMT
$s =$	12	%
$M =$	4.46	%
$S =$	15	mph
$C =$	0.00047	lb/VMT
# days precip >0.01in, $p =$	104	days

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-3

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-3

Ref: AP-42, Table 13.2.2-4

Ref: AP-42, Table 13.2.2-4

Lewiston, ID climate station

<http://wf.ncdc.noaa.gov/oa/climate/online/ccd/prcpdays.html>

## Appendix B

### Paved Parking Lot Fugitives

University of Idaho  
Emission Inventory  
Fugitive Emissions - Paved Parking Lots

Fugitive Dust Emissions from University Parking Lots - Paved -					
Lot Number	Number of Parking Spaces	Distance (miles)	Vehicles Per Day	Dust Emissions (lbs/day)	Dust Emissions (tons/yr)
1	35	0.056	53	0.045	0.008
2	55	0.1	83	0.127	0.023
3	22	--	33	--	--
4	33	--	50	--	--
5	103	0.103	155	0.246	0.045
6	77	0.105	116	0.187	0.034
7	188	0.194	282	0.844	0.154
8	16	0.064	24	0.024	0.004
15	46	0.025	69	0.027	0.005
16	59	0.083	89	0.113	0.021
17	132	0.154	198	0.470	0.086
18	65	0.107	98	0.161	0.029
19	165	0.167	248	0.638	0.116
23	34	0.067	51	0.053	0.010
24	160	0.164	240	0.607	0.111
25	370	0.172	555	1.473	0.269
26	3	0.163	5	0.011	0.002
27	15	0.091	23	0.032	0.006
28	59	0.101	89	0.138	0.025
29	39	0.08	59	0.072	0.013
30	200	0.163	300	0.754	0.138
31	61	0.227	92	0.320	0.058
32	6	0.042	9	0.006	0.001
34	323	0.116	485	0.867	0.158
36	48	0.089	72	0.099	0.018
37	45	0.196	68	0.204	0.037
39	82	0.227	123	0.431	0.079
40	80	0.235	120	0.435	0.079
41	67	0.089	101	0.138	0.025
42	30	0.029	45	0.020	0.004

## Appendix B

### Paved Parking Lot Fugitives

University of Idaho  
Emission Inventory  
Fugitive Emissions - Paved Parking Lots

Fugitive Dust Emissions from University Parking Lots - Paved -					
Lot Number	Number of Parking Spaces	Distance (miles)	Vehicles Per Day	Dust Emissions (lbs/day)	Dust Emissions (tons/yr)
43	19	0.117	29	0.051	0.009
44	77	0.129	116	0.230	0.042
45	84	0.121	126	0.235	0.043
46	41	0.105	62	0.100	0.018
47	43	0.086	65	0.086	0.016
48	46	0.21	69	0.224	0.041
49	30	0.055	45	0.038	0.007
50	51	0.213	77	0.251	0.046
51	40	0.055	60	0.051	0.009
53	25	0.010	38	0.006	0.001
54	109	0.159	164	0.401	0.073
56	135	0.199	203	0.622	0.113
58	33	0.056	50	0.043	0.008
60	331	0.05	497	0.383	0.070
62	245	0.020	368	0.113	0.021
64	168	0.030	252	0.117	0.021
South Hill Sweet	9	0.025	14	0.005	0.001
South Hill North	56	--	84	--	--
South Hill South	57	--	86	--	--
South Hill Deakin	72	--	108	--	--
South Hill Terrace North	69	--	104	--	--
South Hill Terrace South	14	--	21	--	--
South Hill Vista	78	0.165	117	0.298	0.054
<b>Total (tons/yr) =</b>					<b>2.28</b>

**Assumptions:**

Four cycle spaces equal one vehicle space.

Fugitive dust emissions from parking lots on the streets were accounted for in paved road calculations.

Traffic in parking lots equaled 1.5 times the number of parking spaces.

Paved Road  
Fugitive Emissions

$$E = \left[ k \left( \frac{sL}{2} \right)^{0.65} \left( \frac{W}{3} \right)^{1.5} - C \right]$$

Ref: AP-42, Fifth Edition, Section 13.2.1, 11/06

Variables	PM-10	Units/Comments
$k =$	0.016	lb/VMT
$sL =$	0.4	for < 5,000 vehicles per day
$W =$	6	tons
$C =$	0.00047	Ref: AP-42 Table 13.2.1-2

## Appendix B

### Unpaved Parking Lot Fugitives

University of Idaho  
Emission Inventory  
Fugitive Emissions - Unpaved Parking Lots

Fugitive Dust Emissions from University Parking Lots - Unpaved -					
Lot Number	Number of Parking Spaces	Distance (miles)	Vehicles Per Day	Dust Emissions (lbs/day)	Dust Emissions (tons/yr)
14	123	0.127	185	13.759	2.511
26	11	0.1	17	0.969	0.177
35	40	0.051	60	1.797	0.328
38	22	0.058	33	1.124	0.205
52	43	0.07	65	2.651	0.484
55	16	0.052	24	0.733	0.134
57*	583	0.1	875	12.838	2.685
<b>Total (tons/yr) =</b>					<b>6.52</b>

\*Lot 57 is near the Sports Stadium and is one-quarter full weekly and full approximately 20 times per year during football games with 1 car/space during football games.

**Assumptions:**

Four cycle spaces equal one vehicle space.

Fugitive dust emissions from parking lots on the streets were accounted for in paved road calculations.

Traffic in parking lots equaled 1.5 times the number of parking spaces.

Unpaved Road  
Fugitive Emissions

$$E = \left[ \frac{k \left( \frac{s}{12} \right)^a \left( \frac{S}{30} \right)^d}{\left( \frac{M}{0.5} \right)^c} - C \right] \left( \frac{365 - p}{365} \right)$$

Ref: AP-42, 11/06, Section 13.2.2-4, Eq. (1b)

Variables	PM-10	Units
empirical constants, $a =$	1	N/A
$c =$	0.2	N/A
$d =$	0.5	N/A
$k =$	1.8	lb/VMT
$s =$	12	%
$M =$	4.46	%
$S =$	15	mph
$C =$	0.00047	lb/VMT
# days precip >0.01in, $p =$	104	days

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-3

Ref: AP-42, Table 13.2.2-2

Ref: AP-42, Table 13.2.2-3

Ref: AP-42, Table 13.2.2-4

Ref: AP-42, Table 13.2.2-4

Lewiston, ID climate station

<http://wf.ncdc.noaa.gov/oa/climate/online/ccd/prcpdays.html>

# Appendix B

## Fugitive Emissions

### Miscellaneous Sources

#### University of Idaho Emission Inventory Fugitive Emissions - Miscellaneous Sources

##### Wood Chip Pile

The University maintains a wood chip pile as fuel storage for the wood-fired boiler. Fugitive dust is emitted from this source. See Table 1 for the emission summary of the wood chip pile.

**Table 1.**

Fugitive Dust Emissions from University Wood Chip Pile - 2006 -			
Quantity of Chips <sup>a</sup> (tons/yr)	EF <sup>b</sup> (lb dust/ton chips)	Moisture Content (%)	Dust Emissions (tons/yr)
19867	0.36	0.4	1.43

<sup>a</sup>Quantity of Chips is calculated using 2006 data of 9,100 tons added to the chip pile plus 10,767 tons removed from the chip pile to take into account both transfers.

<sup>b</sup>Emission Factor provided by Darrin Mehr, DEQ, for sawdust, 2000

##### Wood Chip Off-Loading Station

The wood-fired boiler has an off-loading station for trucks carrying wood chip fuel. A hydraulic powered ramp tilts the truck trailer to dump the wood chips into a hopper which feeds onto a covered conveyor belt system. Fugitive dust is emitted from the dumping of the wood chip fuel. See Table 2 for the emission summary for the wood chip off-loading station.

**Table 2.**

Fugitive Dust Emissions from University Wood Chip Pile Off-Loading Station (Power Plant) - 2006 -			
Quantity of Chips (tons/yr)	EF <sup>c</sup> (lb dust/ton chips)	Moisture Content (%)	Dust Emissions
31462	0.36	0.4	2.27

<sup>c</sup>Emission Factor provided by Darrin Mehr, DEQ, for sawdust, 2000

# Appendix B

## Fugitive Emissions

### Miscellaneous Sources

#### University of Idaho

#### Emission Inventory

#### Fugitive Emissions - Miscellaneous Sources

#### Sand, Basalt Rock, Topsoil, and Compost Piles

The University maintains sand, basalt rock, topsoil, and compost piles for various university activities. Sand is used primarily for sanding sidewalks in the winter, basalt rock is used primarily for sanding roads in the winter, and topsoil and compost are used for landscaping activities. Fugitive dust is created by wind erosion and loading/unloading and is emitted from these sources. See Table 3 for the emission summary of the various piles.

Table 3.

Fugitive Dust Emissions (Sand, Basalt Rock, Topsoil, and Composite Piles)		
Material	Estimated Amount of Material (tons/yr)	Emissions (tons/yr)
Sand	40	0.003
Basalt Rock	1022	0.088
Topsoil	458	0.039
Composite	168	0.014
Total (tons/yr) =		0.145

Aggregate Handling  
and Storage Piles  
Fugitive Emissions

$$E = k \times 0.0032 \left[ \frac{\left( \frac{U}{5} \right)^{1.3}}{\left( \frac{M}{2} \right)^{1.4}} \right]$$

Ref: AP-42, Aggregate Handling and Storage Piles, Section 13.2.4, Eq.(1), 11/06

Variables	PM-10	Units/Comments
$k =$	0.35	for < 10 microgram diameter
$U =$	15	mph
$M =$	0.25	% moisture

Example Calculation (Sand):

$$0.35 \times (0.0032) \times \left[ \frac{(15/5)^{1.3}}{(0.25/2)^{1.4}} \right] = 0.0859 \text{ lbs of dust per ton of material}$$

$$40 \text{ tons of sand/yr} \times 0.0859 \text{ lbs/ton} \times 2^* = 6.87 \text{ lbs/yr}$$

\*Note, amount of fugitive dusts are doubled to reflect loading and unloading.

**Total Fugitive Emissions from Miscellaneous Sources = 3.84 tons/yr**

**APPENDIX C: E-MAIL FROM KEVIN SCHILLING ABOUT  
THE AERMOD MODEL**

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**Joe Peterson**

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**From:** Kevin.Schilling@deq.idaho.gov  
**Sent:** Tuesday, April 15, 2008 11:56 AM  
**To:** Joe Peterson  
**Subject:** RE: University of Idaho Modeling

Hello Joe,

I did receive your phone message but I'm out of the office today. I'm sorry for not getting back to you soon. I thought I had replied to this message but I now realize I did not.

Since there are no other met data to use, the DEQ modeling analyses performed will satisfy the PM10 requirements for the Tier II. You do not need a protocol; however, please indicate in the application that DEQ agreed to perform the modeling in support of the Tier II.

Please let me know if you have any other questions.

Kevin

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**From:** Joe Peterson [mailto:Peterson@bison-eng.com]  
**Sent:** Thu 4/3/2008 3:16 PM  
**To:** Kevin Schilling  
**Cc:** Chris Hiltunen  
**Subject:** University of Idaho Modeling

Hello Kevin,

Thank you for the return call on the U of I modeling. I do have a few additional questions and comments.

I want to confirm that your December 2007 draft memo on the U of I modeling would be sufficient for the PM-10 demonstration.

Additional Modeling for the other criteria pollutants is required for the outstanding permit application. We are proposing to use your PM-10 model with buildings and these receptors; 10 flagpole receptors at the Thedopolis Tower, 109 flagpole receptors covering the Living Learning Center area, and 960 groundlevel receptors to model the latest NOx, CO, and SO2 emissions for a NAAQS analysis. Are VOC's required to be modeled?

I exchanged emails with Dr Brian Lamb at WSU about local onsite metrological data. Brian was not aware of any and stated his opinion that Spokane met data should be representative. Based on this we propose to use the Spokane AERMET data that you supplied for 1987-1991.

Will you require a modeling protocol for the U of I project?

Joe Peterson  
Staff Engineer

Bison Engineering, Inc.  
1400 11th Avenue

5/1/2008